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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,105	12/09/2003	Akira Miyamae	117770	2660
25944	7590	11/01/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			SONG, SARAH U	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/730,105

Applicant(s)

MIYAMAE ET AL.

Examiner

Sarah Song

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. Applicant's communication filed on August 22, 2005 has been carefully considered and placed of record in the file. Claims 1 and 6 have been amended. Claim 5 has been canceled. Claims 16-17 have been newly added. Claims 1-4 and 6-17 are pending.

***Claim Rejections - 35 USC § 103***

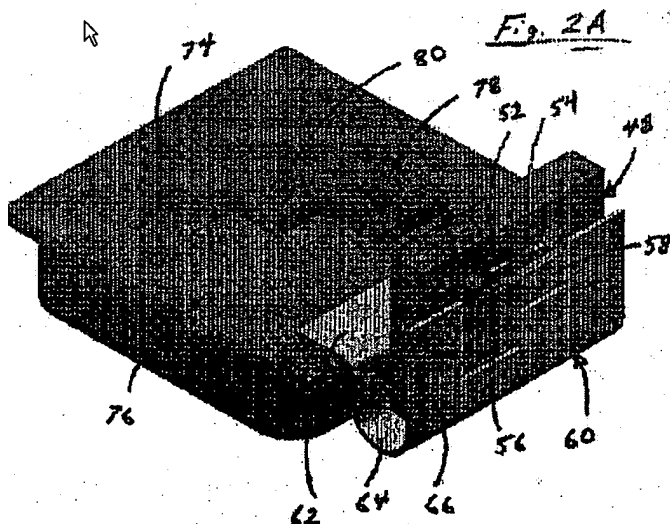
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1, 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brezina et al. (U.S. Patent 6,705,769 previously relied upon) in view of Kryzak (U.S. Patent 6,491,446 previously relied upon) and Ono (JP 07-202357 previously relied upon).**

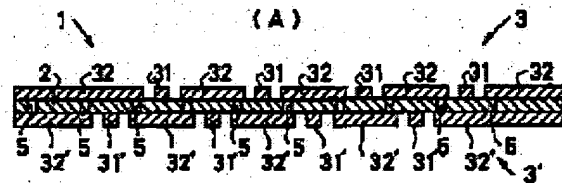
4. Regarding claim 1, Brezina et al. discloses an optical communication device, comprising: a first substrate 48 having a light-emitting element 52 or a light-receiving element 54 on one side of the first substrate; a second substrate 74 having an electronic circuit to perform operation

control of the light-emitting element or the light-receiving element; and a flexible substrate 60 which connects a section between the light-emitting element or the light-receiving element and the electronic circuit.



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5. Brezina et al. does not expressly disclose the flexible substrate to achieve impedance matching.
6. Kryzak discloses a flexible connecting that achieves impedance matching. Column 5, lines 35-37.
7. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the device of Brezina et al. with an impedance matching flexible substrate as shown by Kryzak.
8. One of ordinary skill in the art would have been motivated to make the modification in order to provide the impedance matching flexible substrate since it was known in the art to provide impedance matching in order to minimize transmission line reflections in high-speed devices.
9. Brezina et al. and Kryzak also does not expressly disclose a microstrip line having a flexible insulating substrate, a signal line on one side of the insulating substrate, and a grounding film on the other side of the insulating substrate. Brezina et al. and Kryzak also do not disclose a first microstrip line including a flexible insulating substrate, a first signal line arranged on one side of the insulating substrate, and a first grounding film arranged on the other side of the insulating substrate; and a second microstrip line including the insulating substrate, a second signal line arranged on the other side of the insulating substrate, and a second grounding film arranged on the one side of the insulating substrate.
10. Ono discloses a flexible substrate comprising a microstrip line having a flexible insulating substrate 2, a signal line 31 on one

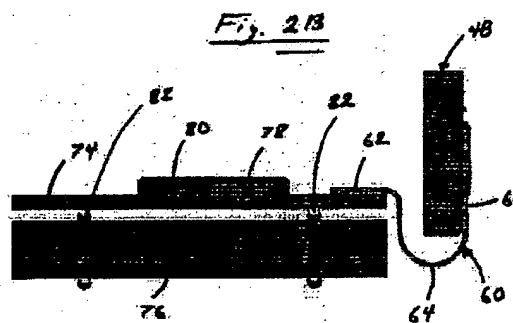


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side of the insulating substrate, and a grounding film 32 on the other side of the insulating substrate. More specifically, Ono discloses a first microstrip line including a flexible insulating substrate 2, a first signal line 31 arranged on one side of the insulating substrate, and a first grounding film 32' arranged on the other side of the insulating substrate; and a second microstrip line including the insulating substrate 2, a second signal line 31' arranged on the other side of the insulating substrate, and a second grounding film 32 arranged on the one side of the insulating substrate.

11. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the flexible substrate of Ono in the device of Brezina et al. for the purpose of minimizing cross talk between the signal lines as taught by Ono (Paragraph [0012]).

12. Regarding claim 2, the first substrate has the light-emitting element 52, the light receiving element 54 and a preamplifier 58, the preamplifier being mounted in proximity with the light receiving element and converts an output current of the light receiving element to a voltage signal.



13. Regarding claim 3, the first and second substrates are arranged in such a manner as to be nearly at right angles to each other.

14. Regarding claim 4, one end portion of the flexible substrate is bonded in such a manner as to cover nearly the entire surface of the first substrate.

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15. Regarding claim 15, the first substrate is formed of a non-light-transmitting member, and the light-emitting element 52 or the light-receiving element 54 being arranged back-to-back with one side of the first substrate 48 so that the light-emitting surface or the light-receiving surface is directed toward free space.

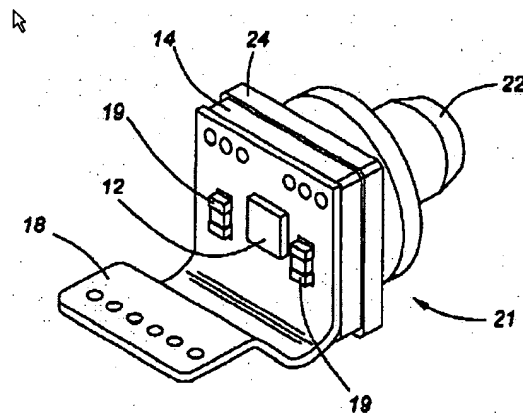
16. **Claims 1, 3, 4, 6-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hargis et al. (U.S. Patent 6,792,171 previously relied upon) in view of Kryzak (U.S. Patent 6,491,446 previously relied upon) and Ono (JP 07-202357 previously relied upon).**

17. Regarding claims 1, 7 and 16, Hargis et al. discloses an optical communication device, comprising: a first substrate 14 having a light-emitting element or a light-receiving element 11 on one side of the first substrate; a second substrate 6 having an electronic circuit to perform operation control of the light-emitting element or the light-receiving element; and a flexible substrate 18 which connects a section between the light-emitting element or the light-receiving element and the electronic circuit.

18. Hargis et al. does not expressly disclose the flexible substrate to achieve impedance matching.

19. Kryzak discloses a flexible connecting that achieves impedance matching. Column 5, lines 35-37.

20. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the device of Hargis et al. with an impedance matching flexible substrate as shown by Kryzak.

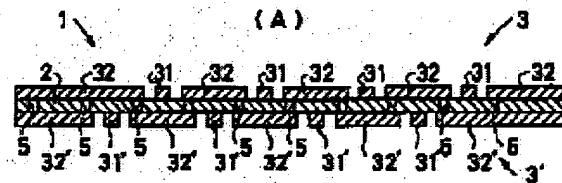


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21. One of ordinary skill in the art would have been motivated to make the modification in order to provide the impedance matching flexible substrate since it was known in the art to provide impedance matching in order to minimize transmission line reflections in high-speed devices.

22. Hargis et al. and Kryzak also does not expressly disclose a microstrip line having a flexible insulating substrate, a signal line on one side of the insulating substrate, and a grounding film on the other side of the insulating substrate. Hargis et al. and Kryzak also do not disclose a first microstrip line including a flexible insulating substrate, a first signal line arranged on one side of the insulating substrate, and a first grounding film arranged on the other side of the insulating substrate; and a second microstrip line including the insulating substrate, a second signal line arranged on the other side of the insulating substrate, and a second grounding film arranged on the one side of the insulating substrate.

23. Ono discloses a flexible substrate comprising a microstrip line having a flexible insulating substrate 2, a signal line 31 on one

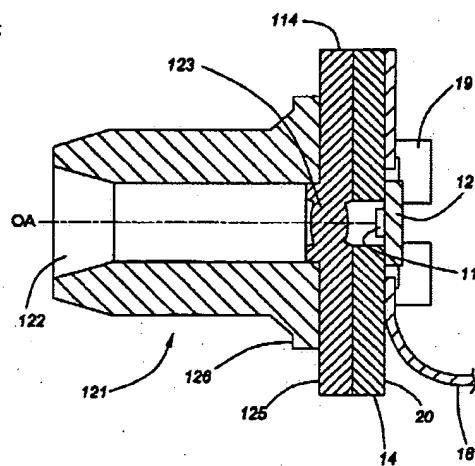


side of the insulating substrate, and a grounding film 32 on the other side of the insulating substrate. More specifically, Ono discloses a first microstrip line including a flexible insulating substrate 2, a first signal line 31 arranged on one side (transmission side) and only one side of the insulating substrate, and a first grounding film 32' arranged on the other side of the insulating substrate; and a second microstrip line including the insulating substrate 2, a second signal line 31' arranged on the other side (receiving side) and only the other side of the insulating substrate, and a second grounding film 32 arranged on the one side of the insulating substrate.

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24. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the flexible substrate of Ono in the device of Hargis et al. for the purpose of minimizing cross talk between the signal lines as taught by Ono (Paragraph [0012]).

25.



26. Regarding claim 3, the first and second substrates are arranged in such a manner as to be nearly at right angles to each other.

27. Regarding claim 4, one end portion of the flexible substrate is bonded in such a manner as to cover nearly the entire surface of the first substrate.

28. Regarding claim 6, the grounding film would have resultantly surrounded the light-emitting element or the light-receiving element as a result of the modification above.

29. Regarding claim 8, the grounding films are arranged in such a manner as to partially overlap each other, with the insulating substrate therebetween.

30. Regarding claims 9, 10, 13 and 14, the first substrate is formed of a light-transmitting member, and a light-emitting surface or a light-receiving surface of the light-emitting element or the light-receiving element is arranged so as to face the first substrate. The light-emitting element or the light-receiving element is arranged inside an opening of the flexible substrate, which is made to overlap the first substrate. The device further comprises a lens 123 to collect outgoing



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light from the light-emitting element or incident light to the light-receiving element 11, wherein the lens is formed integrally with the first substrate. See also column 4, lines 39-40.

31. Regarding claims 11 and 12, the light-emitting element or the light-receiving element is arranged on the flexible substrate, which is made to overlap the first substrate. The flexible substrate has an opening that exposes a light-emitting surface of the light-emitting element or a light-receiving surface of the light-receiving element. Figure 16.

32. Regarding claim 17, it is noted that microstrip line of Ono further has a first grounding film 32 arranged on the one side of the insulating substrate, a second grounding film 32' arranged on the other side of the insulating substrate, and a through hole 5 connected to the first grounding film and the second grounding film, and the through hole is arranged only between the signal line 31 on the transmission side and the signal line 31' on the receiving side.

### ***Response to Arguments***

33. Applicant's arguments filed August 22, 2005 have been fully considered but they are not persuasive. Regarding claims 1-4 and 6-15, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the through hole) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

34. However, with regards to claims 16 and 17, Ono discloses a microstrip line that meets the claimed limitation, wherein the top side of the substrate shown in Drawing 2 is considered the transmission side, and the bottom side of the substrate is considered the receiving side. Since the signal lines on either side of the substrate are capable of transmitting/receiving, it is deemed

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proper to consider each side either a transmission side or receiving side. The through holes 5 are only between a signal line of the receiving side and a signal line of the transmission side as claimed.

***Conclusion***

35. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

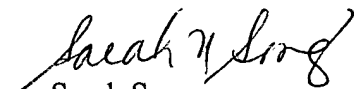
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Song whose telephone number is 571-272-2359. The examiner can normally be reached on M-Th 7:30am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sarah Song  
Patent Examiner  
Group Art Unit 2874